



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Gang Luo et al.	§	Art Unit:	2162
		§		
Serial No.:	09/900,280	§		
		§	Examiner:	Jean B. Fleurantin
Filed:	July 6, 2001	§		
		§		
For:	Auxiliary Relation for	§	Atty. Dkt. No.:	9917 (NCR.0051US)
	Materialized View	§		

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal.

CLAIMS 4 AND 16

Each of independent claims 4 and 16 was rejected as being obvious over Mumick in view of Quass. In the Response to Arguments section of the Office Action, the Examiner cited to M.P.E.P. § 2111 and various case law mentioned in M.P.E.P. § 2111 for the proposition that during patent examination, claims are to be given the broadest reasonable interpretation consistent with the specification. 11/03/2005 Office Action at 8. Note that the "broadest reasonable interpretation" rule still requires that the interpretation of the claim terms be *reasonable*. Ignoring claim terms in making an obviousness rejection, as performed in the Office Action, is clearly *unreasonable*.

Claim 4 recites receiving a first tuple into a base relation at a *first node* of a *parallel database system having plural nodes*, where the first tuple comprises a join attribute and the base relation is *partitioned* across the *nodes* according to an *attribute different from the join attribute*. The Examiner cited two passages in column 8 of Mumick as disclosing this element of claim 4 (col. 8, lines 5-9; and col. 8, lines 15-21). 11/03/2005 Office Action at 2.

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The cited passages refer to computing first-level change tables and propagating the first-level change tables upwards to compute a high-level change table. The cited passages also refer to refreshing a higher-level materialized view by applying the higher-level change table to the higher-level materialized view. However, the cited column 8 passages clearly do not suggest receiving a tuple into a base relation that is *partitioned across nodes of a parallel database system* according to an attribute different from a join attribute. In fact, Mumick suggests the complete opposite, describing a uni-processor system, as depicted in FIG. 1 of Mumick. FIG. 1 of Mumick shows one CPU 102 and one storage device 110. The storage device 110 of FIG. 1 contains a database having tables 114A, 114Z, materialized views 122A, 122Z and change tables 128A, 128Z. There is absolutely no indication whatsoever of distributing any of the tables and, in particular, the base tables 114A, 114Z, across plural nodes of a database system. Even more particularly, there is absolutely no teaching or suggestion anywhere in Mumick of partitioning the tables 114A, 114Z across the nodes of a parallel database system according to an *attribute different from a join attribute*.

The Examiner, in the present Office Action, did not directly address Applicant's arguments regarding the mis-application of Mumick to the receiving element of claim 4. The mis-application of Mumick to this receiving element of claim 4 is a clear legal error that renders the obviousness rejection defective. In making a rejection based on prior art, elements of the claims cannot simply be *ignored*.

Quass also clearly fails to disclose the receiving element of claim 4, as Quass similarly provides no teaching or suggestion of receiving a first tuple into a base relation at a *first node of a parallel database system having plural nodes*, where the first tuple comprises a join attribute and the base relation is *partitioned across the nodes* according to an *attribute different from the join attribute*. Since neither Mumick nor Quass has anything to do with partitioning any type of base relation across nodes of a parallel database system, their hypothetical combination clearly does not disclose or suggest all elements of claim 4. Therefore, a *prima facie* case of obviousness clearly has not been established with respect to claim 4. See M.P.E.P. § 2143 (8<sup>th</sup> ed., Rev. 3), at 2100-135.

The Examiner made the assertion that "Applicant(s) appear(s) to misinterpret the guidance given under MPEP 2142." 11/3/2005 Office Action at 6. It is respectfully submitted that Applicant has *not* misinterpreted the requirement set forth in § 2143 of the M.P.E.P. for a

*prima facie* case of obviousness. The clear language of § 2143 is that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.” Here, it would be impossible for the combined teachings of Mumick and Quass to teach or suggest at least the receiving element of claim 4, as discussed above.

In addition, the Examiner conceded that Mumick does not teach storing the first tuple in an auxiliary relation at a second node of the parallel database system, where the auxiliary relation is partitioned across the nodes of the parallel database system according to the join attribute. 11/3/2005 Office Action 3. Rather, the Examiner relied upon Quass as teaching the missing element. *Id.* Although Quass teaches the use of “auxiliary views” in a database system for self-maintaining materialized views, the auxiliary views of Quass are not partitioned across the nodes of a database system according to a join attribute. In fact, no mention whatsoever is made of a parallel database system in Quass. Quass addresses a different issue than the present invention.

In Quass, the problem to be addressed is the avoidance of the storage of an entire base relation in a data warehouse. To do this, Quass proposes the use of an auxiliary view that “is never larger than the ‘base relation’ and may be much smaller.” Quass, p. 161, column 2, lines 29-35. “When a view together with a set of auxiliary views can be maintained at the warehouse without accessing base data, we say the views are *self-maintainable*.” Quass, p. 158, column 2, lines 31-35. Quass has nothing to do with partitioning a base relation and auxiliary relation across nodes of a parallel database system in different ways, as recited in claim 4. Note that claim 4 recites that a base relation is partitioned across nodes according to an *attribute different from a join attribute*, while the auxiliary relation is partitioned across nodes of the database system according to the *join attribute*.

In response to Applicant’s arguments, the Examiner stated that because “Quass discloses steps of materializing the auxiliary views to represent a significant savings over materializing the base relations, ... [i]t would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combined teachings of Mumick and Quass with auxiliary relation.” 11/3/2005 Office Action at 5. This statement made in the Office Action does not address the specific language of claim 4, namely that the auxiliary relation is partitioned across the nodes of the database system according to the join attribute. Again, specific words of the claim have been ignored, which is clearly prohibited. The Examiner cited to various case law for

the proposition that obviousness can be determined by what the references reasonably suggest to a person of ordinary skill in the art. *Id.* at 7. However, nowhere within Mumick or Quass (or even in the combined teachings of Mumick and Quass) is there any suggestion of partitioning an auxiliary relation across the nodes of the database system according to a join attribute, and partitioning the base relation across the nodes according to an attribute different from the join attribute.

The Examiner also stated that the test for obviousness is “not whether the features of a secondary references may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references[, rather], the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” 11/3/2005 Office Action at 7. This statement made in the Office Action mischaracterized Applicant’s arguments. Applicant’s actual argument is that there existed no suggestion (whether explicit or implicit) in Mumick or Quass of the storing element of claim 4. Therefore, clearly, a *prima facie* case of obviousness has not been established with respect to claim 4.

Moreover, there was no motivation or suggestion to combine the teachings of Mumick and Quass. Whereas Mumick relates to the use of change tables (which is a compilation of updates that are to be performed to a materialized view) for performing materialized view maintenance, Quass relates to the storage of a subset of a base relation in a data warehouse, in the form of an auxiliary view, for performing materialized view maintenance. There was no suggestion of any need or desirability for the auxiliary views of Quass in the materialized view maintenance mechanism described in Mumick. *See In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992) (“The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.”). Moreover, as held by *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), a case cited by the Office Action, obviousness cannot be established by combining teachings of prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *In re Fine*, 837 F.2d at 1075. The *prima facie* case of obviousness is defective for this further reason.

Withdrawal of the obviousness rejection of claim 4 is therefore respectfully requested. Independent claim 16 is allowable over the asserted combination of Mumick and Quass for similar reasons.

CLAIMS 41 AND 42

Independent claim 41 is also similarly allowable, since the hypothetical combination of Mumick and Quass fails to disclose storage *modules* to store base relations and at least a first auxiliary relation corresponding to a first one of the base relations, where the first auxiliary relation is partitioned across the storage modules *differently* than the first base relation. No such different partitioning of a base relation and an auxiliary relation across storage modules is taught or even remotely suggested by either Mumick or Quass. Moreover, as discussed above, no motivation or suggestion existed to combine the teachings of Mumick and Quass. Therefore, a *prima facie* case of obviousness has not been established with respect to claim 41.

Independent claim 42 is similarly allowable over the asserted combination of Quass and Mumick.

CONCLUSION

In view of the foregoing, it is respectfully requested that the final rejections of the claims be withdrawn. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 14-0225 (9917).

Respectfully submitted,

Date: \_\_\_\_\_

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